

SEQUENCE LISTING

<110> BAKER, Matthew
 WATKINS, John

<120> MODIFIED HIRUDIN PROTEINS AND T-CELL
 EPITOPES IN HIRUDIN

<130> MER-142

<140> Unknown
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<150> PCT/EP2004/006943
 <151> 2004-06-25

<150> EP03014332.5
 <151> 2003-06-26

<160> 108

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 1 5 10 15
 Glu Gly Thr Pro Lys Pro Glu Ser His Asn Asp Gly Asp Phe Glu
 20 25 30

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<221> VARIANT
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 X=A, G, H, K, N, P, Q, R, V;
 X=A, D, E, G, H, K, N, Q, R, S, T, I;

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 <223> X=A, D, E, G, H, K, N, P, Q, R, S, T, L;
 X=A, T, V;
 X=T, K;

$$X=A, T, P$$

<221> VARIANT

<222> 53, 56

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$\langle 210 \rangle$ 3

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1 5 10 15
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Asp Gly Glu Lys Asn Gln Cys Val Thr Gly Glu Gly Thr Pro Lys Pro
35 40 45
Glu Ser His Asn Asp Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
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20 25 30
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35 40 45
Glu Ser His Asn Asp Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
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20 25 30
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35 40 45
Glu Ser His Asn Asp Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu

50 55 60
Gln
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      20          25          30
Asp Gly Glu Lys Asn Gln Cys Val Thr Gly Glu Gly Thr Pro Lys Pro
      35          40          45
Glu Ser His Asn Glu Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
 50          55          60
Gln
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 20          25          30
Asp Gly Glu Lys Asn Gln Cys Val Thr Gly Glu Gly Thr Pro Lys Pro
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Glu Ser His Asn Asn Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
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Gln
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 1             5             10             15
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 20 25 30
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Glu Ser His Asn Asp Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
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Gln
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 20 25 30
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 35 40 45
Glu Ser His Asn Asp Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
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Gln
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 1 5 10 15
Glu Gly Ser Val Val Cys Gly Gln Gly Asn Lys Cys Arg Lys Gly Ser
 20 25 30
Asp Gly Glu Lys Asn Gln Cys Val Thr Gly Glu Gly Thr Pro Lys Pro
 35 40 45
Glu Ser His Asn Glu Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
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Gln
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Glu	Gly	Ser	Val	Val	Cys	Gly	Gln	Gly	Asn	Lys	Cys	Arg	Lys	Gly	Ser
			20					25					30		
Asp	Gly	Glu	Lys	Asn	Gln	Cys	Val	Thr	Gly	Glu	Gly	Thr	Pro	Lys	Pro
		35				40					45				
Glu	Ser	His	Asn	Asn	Gly	Asp	Phe	Glu	Glu	Ile	Pro	Glu	Glu	Tyr	Leu
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Gln															
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<223> modified hirudin

<400> 14

Val	Val	Tyr	Thr	Asp	Cys	Thr	Glu	Ser	Gly	Gln	Asn	Leu	Cys	Leu	Cys
1				5					10					15	
Glu	Gly	Ser	Val	Val	Cys	Gly	Gln	Gly	Asn	Lys	Cys	Arg	Arg	Gly	Ser
			20					25					30		
Asp	Gly	Glu	Lys	Asn	Gln	Cys	Thr	Thr	Gly	Glu	Gly	Thr	Pro	Lys	Pro
		35				40					45				
Glu	Ser	His	Asn	Asp	Gly	Asp	Phe	Glu	Glu	Ile	Pro	Glu	Glu	Tyr	Leu
	50					55					60				
Gln															
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<210> 15

<211> 65

<212> PRT

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<223> modified hirudin

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Val	Val	Tyr	Thr	Asp	Cys	Thr	Glu	Ser	Gly	Gln	Asn	Leu	Cys	Leu	Cys
1				5					10					15	
Glu	Gly	Ser	Val	Val	Cys	Gly	Gln	Gly	Asn	Lys	Cys	Ala	Lys	Gly	Ser
			20					25					30		
Asp	Gly	Glu	Lys	Asn	Gln	Cys	Val	Thr	Gly	Glu	Gly	Thr	Pro	Lys	Pro
		35				40					45				
Glu	Ser	His	Asn	Asp	Gly	Asp	Phe	Glu	Glu	Ile	Pro	Glu	Glu	Tyr	Leu
	50					55					60				
Gln															
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<400> 16
 Val Val Tyr Thr Asp Cys Thr Glu Ser Gly Gln Asn Leu Cys Leu Cys
 1 5 10 15
 Glu Gly Ser Val Val Cys Gly Gln Gly Asn Lys Cys Ala Gln Gly Ser
 20 25 30
 Asp Gly Glu Lys Asn Gln Cys Val Thr Gly Glu Gly Thr Pro Lys Pro
 35 40 45
 Glu Ser His Asn Asp Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
 50 55 60
 Gln
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<210> 17
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<400> 17
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 1 5 10 15
 Glu Gly Ser Val Val Cys Gly Gln Gly Asn Lys Cys Ala Arg Gly Ser
 20 25 30
 Asp Gly Glu Lys Asn Gln Cys Val Thr Gly Glu Gly Thr Pro Lys Pro
 35 40 45
 Glu Ser His Asn Asp Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
 50 55 60
 Gln
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<400> 18
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 1 5 10 15
 Glu Gly Ser Val Val Cys Gly Gln Gly Asn Lys Cys Ala Thr Gly Ser
 20 25 30
 Asp Gly Glu Lys Asn Gln Cys Val Thr Gly Glu Gly Thr Pro Lys Pro
 35 40 45
 Glu Ser His Asn Asp Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
 50 55 60

Gln
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<400> 19
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1 5 10 15
Glu Gly Ser Val Val Cys Gly Gln Gly Asn Lys Cys Asp Ala Gly Ser
20 25 30
Asp Gly Glu Lys Asn Gln Cys Val Thr Gly Glu Gly Thr Pro Lys Pro
35 40 45
Glu Ser His Asn Asp Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
50 55 60
Gln
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<400> 20
Val Val Tyr Thr Asp Cys Thr Glu Ser Gly Gln Asn Leu Cys Leu Cys
1 5 10 15
Glu Gly Ser Val Val Cys Gly Gln Gly Asn Lys Cys Asp Gln Gly Ser
20 25 30
Asp Gly Glu Lys Asn Gln Cys Val Thr Gly Glu Gly Thr Pro Lys Pro
35 40 45
Glu Ser His Asn Asp Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
50 55 60
Gln
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<210> 21
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<400> 21
Val Val Tyr Thr Asp Cys Thr Glu Ser Gly Gln Asn Leu Cys Leu Cys
1 5 10 15
Glu Gly Ser Val Val Cys Gly Gln Gly Asn Lys Cys Asp Arg Gly Ser

		20						25					30				
Asp	Gly	Glu	Lys	Asn	Gln	Cys	Val	Thr	Gly	Glu	Gly	Thr	Pro	Lys	Pro		
		35					40					45					
Glu	Ser	His	Asn	Asp	Gly	Asp	Phe	Glu	Glu	Ile	Pro	Glu	Glu	Tyr	Leu		
	50					55					60						
Gln																	
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<210> 22
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Val	Val	Tyr	Thr	Asp	Cys	Thr	Glu	Ser	Gly	Gln	Asn	Leu	Cys	Leu	Cys		
1				5					10					15			
Glu	Gly	Ser	Val	Val	Cys	Gly	Gln	Gly	Asn	Lys	Cys	Glu	Lys	Gly	Ser		
			20					25					30				
Asp	Gly	Glu	Lys	Asn	Gln	Cys	Val	Thr	Gly	Glu	Gly	Thr	Pro	Lys	Pro		
		35					40					45					
Glu	Ser	His	Asn	Asp	Gly	Asp	Phe	Glu	Glu	Ile	Pro	Glu	Glu	Tyr	Leu		
	50					55					60						
Gln																	
65																	

<210> 23
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<220>
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Val	Val	Tyr	Thr	Asp	Cys	Thr	Glu	Ser	Gly	Gln	Asn	Leu	Cys	Leu	Cys		
1				5					10					15			
Glu	Gly	Ser	Val	Val	Cys	Gly	Gln	Gly	Asn	Lys	Cys	Glu	Gln	Gly	Ser		
			20					25					30				
Asp	Gly	Glu	Lys	Asn	Gln	Cys	Val	Thr	Gly	Glu	Gly	Thr	Pro	Lys	Pro		
		35					40					45					
Glu	Ser	His	Asn	Asp	Gly	Asp	Phe	Glu	Glu	Ile	Pro	Glu	Glu	Tyr	Leu		
	50					55					60						
Gln																	
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<400> 24

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 1           5           10           15
Glu Gly Ser Val Val Cys Gly Gln Gly Asn Lys Cys Glu Arg Gly Ser
          20           25           30
Asp Gly Glu Lys Asn Gln Cys Val Thr Gly Glu Gly Thr Pro Lys Pro
          35           40           45
Glu Ser His Asn Asp Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
          50           55           60
Gln
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<220>

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<400> 25

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Val Val Tyr Thr Asp Cys Thr Glu Ser Gly Gln Asn Leu Cys Leu Cys
 1           5           10           15
Glu Gly Ser Val Val Cys Gly Gln Gly Asn Lys Cys Glu Thr Gly Ser
          20           25           30
Asp Gly Glu Lys Asn Gln Cys Val Thr Gly Glu Gly Thr Pro Lys Pro
          35           40           45
Glu Ser His Asn Asp Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
          50           55           60
Gln
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<210> 26

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<220>

<223> modified hirudin

<400> 26

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Val Val Tyr Thr Asp Cys Thr Glu Ser Gly Gln Asn Leu Cys Leu Cys
 1           5           10           15
Glu Gly Ser Val Val Cys Gly Gln Gly Asn Lys Cys Arg Lys Gly Ser
          20           25           30
Asp Gly Glu Lys Asn Gln Cys Val Thr Gly Glu Gly Thr Pro Lys Pro
          35           40           45
Glu Ser His Asn Asp Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
          50           55           60
Gln
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<210> 27

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<223> modified hirudin

<400> 27

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Val Val Tyr Thr Asp Cys Thr Glu Ser Gly Gln Asn Leu Cys Leu Cys
 1           5           10           15
Glu Gly Ser Val Val Cys Gly Gln Gly Asn Lys Cys Arg Gln Gly Ser
      20           25           30
Asp Gly Glu Lys Asn Gln Cys Val Thr Gly Glu Gly Thr Pro Lys Pro
      35           40           45
Glu Ser His Asn Asp Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
      50           55           60
Gln
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<210> 28

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<400> 28

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 1           5           10           15
Glu Gly Ser Val Val Cys Gly Gln Gly Asn Lys Cys Arg Arg Gly Ser
      20           25           30
Asp Gly Glu Lys Asn Gln Cys Val Thr Gly Glu Gly Thr Pro Lys Pro
      35           40           45
Glu Ser His Asn Asp Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
      50           55           60
Gln
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<400> 29

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 1           5           10           15
Glu Gly Ser Val Val Cys Gly Gln Gly Asn Lys Cys Arg Thr Gly Ser
      20           25           30
Asp Gly Glu Lys Asn Gln Cys Val Thr Gly Glu Gly Thr Pro Lys Pro
      35           40           45
Glu Ser His Asn Asp Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
      50           55           60
Gln
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1 5 10 15
Glu Gly Ser Val Val Cys Gly Gln Gly Asn Lys Cys Ser Ala Gly Ser
20 25 30
Asp Gly Glu Lys Asn Gln Cys Val Thr Gly Glu Gly Thr Pro Lys Pro
35 40 45
Glu Ser His Asn Asp Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
50 55 60
Gln
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<210> 31
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Val Val Tyr Thr Asp Cys Thr Glu Ser Gly Gln Asn Leu Cys Leu Cys
1 5 10 15
Glu Gly Ser Val Val Cys Gly Gln Gly Asn Lys Cys Ser Lys Gly Ser
20 25 30
Asp Gly Glu Lys Asn Gln Cys Val Thr Gly Glu Gly Thr Pro Lys Pro
35 40 45
Glu Ser His Asn Asp Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
50 55 60
Gln
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<210> 32
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<212> PRT
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<400> 32
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1 5 10 15
Glu Gly Ser Val Val Cys Gly Gln Gly Asn Lys Cys Ser Gln Gly Ser
20 25 30
Asp Gly Glu Lys Asn Gln Cys Val Thr Gly Glu Gly Thr Pro Lys Pro
35 40 45

Glu Ser His Asn Asp Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
50 55 60

Gln
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<212> PRT

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<220>

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<400> 33

Val Val Tyr Thr Asp Cys Thr Glu Ser Gly Gln Asn Leu Cys Leu Cys
1 5 10 15

Glu Gly Ser Val Val Cys Gly Gln Gly Asn Lys Cys Ser Arg Gly Ser
20 25 30

Asp Gly Glu Lys Asn Gln Cys Val Thr Gly Glu Gly Thr Pro Lys Pro
35 40 45

Glu Ser His Asn Asp Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
50 55 60

Gln
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<400> 34

Val Val Tyr Thr Asp Cys Thr Glu Ser Gly Gln Asn Leu Cys Leu Cys
1 5 10 15

Glu Gly Ser Val Val Cys Gly Gln Gly Asn Lys Cys Ser Thr Gly Ser
20 25 30

Asp Gly Glu Lys Asn Gln Cys Val Thr Gly Glu Gly Thr Pro Lys Pro
35 40 45

Glu Ser His Asn Asp Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
50 55 60

Gln
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<400> 35

Val Val Tyr Thr Asp Cys Thr Glu Ser Gly Gln Asn Leu Cys Leu Cys

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      1           5           10           15
Glu Gly Ser Val Val Cys Gly Gln Gly Asn Lys Cys Thr Ala Gly Ser
      20           25           30
Asp Gly Glu Lys Asn Gln Cys Val Thr Gly Glu Gly Thr Pro Lys Pro
      35           40           45
Glu Ser His Asn Asp Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
      50           55           60
Gln
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<400> 36
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      1           5           10           15
Glu Gly Ser Val Val Cys Gly Gln Gly Asn Lys Cys Thr Lys Gly Ser
      20           25           30
Asp Gly Glu Lys Asn Gln Cys Val Thr Gly Glu Gly Thr Pro Lys Pro
      35           40           45
Glu Ser His Asn Asp Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
      50           55           60
Gln
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<210> 37
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<400> 37
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      1           5           10           15
Glu Gly Ser Val Val Cys Gly Gln Gly Asn Lys Cys Thr Gln Gly Ser
      20           25           30
Asp Gly Glu Lys Asn Gln Cys Val Thr Gly Glu Gly Thr Pro Lys Pro
      35           40           45
Glu Ser His Asn Asp Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
      50           55           60
Gln
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<210> 38
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<400> 38

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Val Val Tyr Thr Asp Cys Thr Glu Ser Gly Gln Asn Leu Cys Leu Cys
 1           5           10           15
Glu Gly Ser Val Val Cys Gly Gln Gly Asn Lys Cys Thr Arg Gly Ser
      20           25           30
Asp Gly Glu Lys Asn Gln Cys Val Thr Gly Glu Gly Thr Pro Lys Pro
      35           40           45
Glu Ser His Asn Asp Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
      50           55           60
Gln
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<210> 39

<211> 65

<212> PRT

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<223> modified hirudin

<400> 39

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Val Val Tyr Thr Asp Cys Thr Glu Ser Gly Gln Asn Leu Cys Leu Cys
 1           5           10           15
Glu Gly Ser Val Val Cys Gly Gln Gly Asn Lys Cys Thr Thr Gly Ser
      20           25           30
Asp Gly Glu Lys Asn Gln Cys Val Thr Gly Glu Gly Thr Pro Lys Pro
      35           40           45
Glu Ser His Asn Asp Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
      50           55           60
Gln
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<210> 40

<211> 65

<212> PRT

<213> Artificial Sequence

<220>

<223> modified hirudin

<400> 40

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Val Val Tyr Thr Asp Cys Thr Glu Ser Gly Gln Asn Thr Cys Leu Cys
 1           5           10           15
Glu Gly Ser Val Val Cys Gly Gln Gly Asn Lys Cys Ile Leu Gly Ser
      20           25           30
Asp Gly Glu Lys Asn Gln Cys Val Thr Gly Glu Gly Thr Pro Lys Pro
      35           40           45
Glu Ser His Asn Asp Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
      50           55           60
Gln
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<210> 41
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<220>
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<400> 41
 Val Val Tyr Thr Asp Cys Thr Glu Ser Gly Gln Asn Leu Cys Ala Cys
 1 5 10 15
 Glu Gly Ser Val Val Cys Gly Gln Gly Asn Lys Cys Ile Leu Gly Ser
 20 25 30
 Asp Gly Glu Lys Asn Gln Cys Val Thr Gly Glu Gly Thr Pro Lys Pro
 35 40 45
 Glu Ser His Asn Asp Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
 50 55 60
 Gln
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<210> 42
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<400> 42
 Val Val Tyr Thr Asp Cys Thr Glu Ser Gly Gln Asn Leu Cys His Cys
 1 5 10 15
 Glu Gly Ser Val Val Cys Gly Gln Gly Asn Lys Cys Ile Leu Gly Ser
 20 25 30
 Asp Gly Glu Lys Asn Gln Cys Val Thr Gly Glu Gly Thr Pro Lys Pro
 35 40 45
 Glu Ser His Asn Asp Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
 50 55 60
 Gln
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<210> 43
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<400> 43
 Val Val Tyr Thr Asp Cys Thr Glu Ser Gly Gln Asn Leu Cys Gln Cys
 1 5 10 15
 Glu Gly Ser Val Val Cys Gly Gln Gly Asn Lys Cys Ile Leu Gly Ser
 20 25 30
 Asp Gly Glu Lys Asn Gln Cys Val Thr Gly Glu Gly Thr Pro Lys Pro
 35 40 45
 Glu Ser His Asn Asp Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu

50 55 60
 Gln
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 Val Val Tyr Thr Asp Cys Thr Glu Ser Gly Gln Asn Leu Cys Thr Cys
 1 5 10 15
 Glu Gly Ser Val Val Cys Gly Gln Gly Asn Lys Cys Ile Leu Gly Ser
 20 25 30
 Asp Gly Glu Lys Asn Gln Cys Val Thr Gly Glu Gly Thr Pro Lys Pro
 35 40 45
 Glu Ser His Asn Asp Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
 50 55 60
 Gln
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 <400> 45
 Val Val Tyr Thr Asp Cys Thr Glu Ser Gly Gln Asn Leu Cys Leu Cys
 1 5 10 15
 Glu Gly Ser Val Ala Cys Gly Gln Gly Asn Lys Cys Ile Leu Gly Ser
 20 25 30
 Asp Gly Glu Lys Asn Gln Cys Val Thr Gly Glu Gly Thr Pro Lys Pro
 35 40 45
 Glu Ser His Asn Asp Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
 50 55 60
 Gln
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<210> 46
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 <400> 46
 Val Val Tyr Thr Asp Cys Thr Glu Ser Gly Gln Asn Leu Cys Leu Cys
 1 5 10 15

Glu Gly Ser Val Gly Cys Gly Gln Gly Asn Lys Cys Ile Leu Gly Ser
 20 25 30
 Asp Gly Glu Lys Asn Gln Cys Val Thr Gly Glu Gly Thr Pro Lys Pro
 35 40 45
 Glu Ser His Asn Asp Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
 50 55 60
 Gln
 65

<210> 47
 <211> 65
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> modified hirudin

<400> 47
 Val Val Tyr Thr Asp Cys Thr Glu Ser Gly Gln Asn Leu Cys Leu Cys
 1 5 10 15
 Glu Gly Ser Val His Cys Gly Gln Gly Asn Lys Cys Ile Leu Gly Ser
 20 25 30
 Asp Gly Glu Lys Asn Gln Cys Val Thr Gly Glu Gly Thr Pro Lys Pro
 35 40 45
 Glu Ser His Asn Asp Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
 50 55 60
 Gln
 65

<210> 48
 <211> 65
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> modified hirudin

<400> 48
 Val Val Tyr Thr Asp Cys Thr Glu Ser Gly Gln Asn Leu Cys Leu Cys
 1 5 10 15
 Glu Gly Ser Val Lys Cys Gly Gln Gly Asn Lys Cys Ile Leu Gly Ser
 20 25 30
 Asp Gly Glu Lys Asn Gln Cys Val Thr Gly Glu Gly Thr Pro Lys Pro
 35 40 45
 Glu Ser His Asn Asp Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
 50 55 60
 Gln
 65

<210> 49
 <211> 65
 <212> PRT
 <213> Artificial Sequence

<220>

<223> modified hirudin

<400> 49

Val	Val	Tyr	Thr	Asp	Cys	Thr	Glu	Ser	Gly	Gln	Asn	Leu	Cys	Leu	Cys
1				5					10					15	
Glu	Gly	Ser	Val	Asn	Cys	Gly	Gln	Gly	Asn	Lys	Cys	Ile	Leu	Gly	Ser
			20					25					30		
Asp	Gly	Glu	Lys	Asn	Gln	Cys	Val	Thr	Gly	Glu	Gly	Thr	Pro	Lys	Pro
		35					40					45			
Glu	Ser	His	Asn	Asp	Gly	Asp	Phe	Glu	Glu	Ile	Pro	Glu	Glu	Tyr	Leu
	50					55					60				
Gln															
65															

<210> 50

<211> 65

<212> PRT

<213> Artificial Sequence

<220>

<223> modified hirudin

<400> 50

Val	Val	Tyr	Thr	Asp	Cys	Thr	Glu	Ser	Gly	Gln	Asn	Leu	Cys	Leu	Cys
1				5					10					15	
Glu	Gly	Ser	Val	Pro	Cys	Gly	Gln	Gly	Asn	Lys	Cys	Ile	Leu	Gly	Ser
			20					25					30		
Asp	Gly	Glu	Lys	Asn	Gln	Cys	Val	Thr	Gly	Glu	Gly	Thr	Pro	Lys	Pro
		35					40					45			
Glu	Ser	His	Asn	Asp	Gly	Asp	Phe	Glu	Glu	Ile	Pro	Glu	Glu	Tyr	Leu
	50					55					60				
Gln															
65															

<210> 51

<211> 65

<212> PRT

<213> Artificial Sequence

<220>

<223> modified hirudin

<400> 51

Val	Val	Tyr	Thr	Asp	Cys	Thr	Glu	Ser	Gly	Gln	Asn	Leu	Cys	Leu	Cys
1				5					10					15	
Glu	Gly	Ser	Val	Gln	Cys	Gly	Gln	Gly	Asn	Lys	Cys	Ile	Leu	Gly	Ser
			20					25					30		
Asp	Gly	Glu	Lys	Asn	Gln	Cys	Val	Thr	Gly	Glu	Gly	Thr	Pro	Lys	Pro
		35					40					45			
Glu	Ser	His	Asn	Asp	Gly	Asp	Phe	Glu	Glu	Ile	Pro	Glu	Glu	Tyr	Leu
	50					55					60				
Gln															
65															

<210> 52

<211> 65
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> modified hirudin

<400> 52
 Val Val Tyr Thr Asp Cys Thr Glu Ser Gly Gln Asn Leu Cys Leu Cys
 1 5 10 15
 Glu Gly Ser Val Arg Cys Gly Gln Gly Asn Lys Cys Ile Leu Gly Ser
 20 25 30
 Asp Gly Glu Lys Asn Gln Cys Val Thr Gly Glu Gly Thr Pro Lys Pro
 35 40 45
 Glu Ser His Asn Asp Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
 50 55 60
 Gln
 65

<210> 53
 <211> 65
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> modified hirudin

<400> 53
 Val Val Tyr Thr Asp Cys Thr Glu Ser Gly Gln Asn Leu Cys Leu Cys
 1 5 10 15
 Glu Gly Ser Val Val Cys Gly Gln Gly Asn Lys Cys Ala Leu Gly Ser
 20 25 30
 Asp Gly Glu Lys Asn Gln Cys Val Thr Gly Glu Gly Thr Pro Lys Pro
 35 40 45
 Glu Ser His Asn Asp Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
 50 55 60
 Gln
 65

<210> 54
 <211> 65
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> modified hirudin

<400> 54
 Val Val Tyr Thr Asp Cys Thr Glu Ser Gly Gln Asn Leu Cys Leu Cys
 1 5 10 15
 Glu Gly Ser Val Val Cys Gly Gln Gly Asn Lys Cys Asp Leu Gly Ser
 20 25 30
 Asp Gly Glu Lys Asn Gln Cys Val Thr Gly Glu Gly Thr Pro Lys Pro
 35 40 45
 Glu Ser His Asn Asp Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
 50 55 60

Gln
65

<210> 55
<211> 65
<212> PRT
<213> Artificial Sequence

<220>
<223> modified hirudin

<400> 55
Val Val Tyr Thr Asp Cys Thr Glu Ser Gly Gln Asn Leu Cys Leu Cys
1 5 10 15
Glu Gly Ser Val Val Cys Gly Gln Gly Asn Lys Cys Glu Leu Gly Ser
20 25 30
Asp Gly Glu Lys Asn Gln Cys Val Thr Gly Glu Gly Thr Pro Lys Pro
35 40 45
Glu Ser His Asn Asp Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
50 55 60
Gln
65

<210> 56
<211> 65
<212> PRT
<213> Artificial Sequence

<220>
<223> modified hirudin

<400> 56
Val Val Tyr Thr Asp Cys Thr Glu Ser Gly Gln Asn Leu Cys Leu Cys
1 5 10 15
Glu Gly Ser Val Val Cys Gly Gln Gly Asn Lys Cys Gly Leu Gly Ser
20 25 30
Asp Gly Glu Lys Asn Gln Cys Val Thr Gly Glu Gly Thr Pro Lys Pro
35 40 45
Glu Ser His Asn Asp Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
50 55 60
Gln
65

<210> 57
<211> 65
<212> PRT
<213> Artificial Sequence

<220>
<223> modified hirudin

<400> 57
Val Val Tyr Thr Asp Cys Thr Glu Ser Gly Gln Asn Leu Cys Leu Cys
1 5 10 15
Glu Gly Ser Val Val Cys Gly Gln Gly Asn Lys Cys His Leu Gly Ser

		20						25					30				
Asp	Gly	Glu	Lys	Asn	Gln	Cys	Val	Thr	Gly	Glu	Gly	Thr	Pro	Lys	Pro		
		35						40				45					
Glu	Ser	His	Asn	Asp	Gly	Asp	Phe	Glu	Glu	Ile	Pro	Glu	Glu	Tyr	Leu		
		50				55					60						
Gln																	
65																	

<210> 58
 <211> 65
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> modified hirudin

Val	Val	Tyr	Thr	Asp	Cys	Thr	Glu	Ser	Gly	Gln	Asn	Leu	Cys	Leu	Cys		
1				5					10					15			
Glu	Gly	Ser	Val	Val	Cys	Gly	Gln	Gly	Asn	Lys	Cys	Lys	Leu	Gly	Ser		
			20					25					30				
Asp	Gly	Glu	Lys	Asn	Gln	Cys	Val	Thr	Gly	Glu	Gly	Thr	Pro	Lys	Pro		
		35					40				45						
Glu	Ser	His	Asn	Asp	Gly	Asp	Phe	Glu	Glu	Ile	Pro	Glu	Glu	Tyr	Leu		
		50				55					60						
Gln																	
65																	

<210> 59
 <211> 65
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> modified hirudin

Val	Val	Tyr	Thr	Asp	Cys	Thr	Glu	Ser	Gly	Gln	Asn	Leu	Cys	Leu	Cys		
1				5					10					15			
Glu	Gly	Ser	Val	Val	Cys	Gly	Gln	Gly	Asn	Lys	Cys	Asn	Leu	Gly	Ser		
			20					25					30				
Asp	Gly	Glu	Lys	Asn	Gln	Cys	Val	Thr	Gly	Glu	Gly	Thr	Pro	Lys	Pro		
		35					40				45						
Glu	Ser	His	Asn	Asp	Gly	Asp	Phe	Glu	Glu	Ile	Pro	Glu	Glu	Tyr	Leu		
		50				55					60						
Gln																	
65																	

<210> 60
 <211> 65
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> modified hirudin

<400> 60

Val	Val	Tyr	Thr	Asp	Cys	Thr	Glu	Ser	Gly	Gln	Asn	Leu	Cys	Leu	Cys
1				5					10					15	
Glu	Gly	Ser	Val	Val	Cys	Gly	Gln	Gly	Asn	Lys	Cys	Gln	Leu	Gly	Ser
			20					25					30		
Asp	Gly	Glu	Lys	Asn	Gln	Cys	Val	Thr	Gly	Glu	Gly	Thr	Pro	Lys	Pro
		35					40					45			
Glu	Ser	His	Asn	Asp	Gly	Asp	Phe	Glu	Glu	Ile	Pro	Glu	Glu	Tyr	Leu
	50					55					60				
Gln															
65															

<210> 61

<211> 65

<212> PRT

<213> Artificial Sequence

<220>

<223> modified hirudin

<400> 61

Val	Val	Tyr	Thr	Asp	Cys	Thr	Glu	Ser	Gly	Gln	Asn	Leu	Cys	Leu	Cys
1				5					10					15	
Glu	Gly	Ser	Val	Val	Cys	Gly	Gln	Gly	Asn	Lys	Cys	Arg	Leu	Gly	Ser
			20					25					30		
Asp	Gly	Glu	Lys	Asn	Gln	Cys	Val	Thr	Gly	Glu	Gly	Thr	Pro	Lys	Pro
		35					40					45			
Glu	Ser	His	Asn	Asp	Gly	Asp	Phe	Glu	Glu	Ile	Pro	Glu	Glu	Tyr	Leu
	50					55					60				
Gln															
65															

<210> 62

<211> 65

<212> PRT

<213> Artificial Sequence

<220>

<223> modified hirudin

<400> 62

Val	Val	Tyr	Thr	Asp	Cys	Thr	Glu	Ser	Gly	Gln	Asn	Leu	Cys	Leu	Cys
1				5					10					15	
Glu	Gly	Ser	Val	Val	Cys	Gly	Gln	Gly	Asn	Lys	Cys	Ser	Leu	Gly	Ser
			20					25					30		
Asp	Gly	Glu	Lys	Asn	Gln	Cys	Val	Thr	Gly	Glu	Gly	Thr	Pro	Lys	Pro
		35					40					45			
Glu	Ser	His	Asn	Asp	Gly	Asp	Phe	Glu	Glu	Ile	Pro	Glu	Glu	Tyr	Leu
	50					55					60				
Gln															
65															

<210> 63

<211> 65

<212> PRT

<213> Artificial Sequence

<220>

<223> modified hirudin

<400> 63

[illegible]

<210> 64

<211> 65

<212> PRT

<213> Artificial Sequence

<220>

<223> modified hirudin

<400> 64

[illegible]

<210> 65

<211> 65

<212> PRT

<213> Artificial Sequence

<220>

<223> modified hirudin

<400> 65

[illegible]

<210> 66
<211> 65
<212> PRT
<213> Artificial Sequence

<220>
<223> modified hirudin

<400> 66
Val Val Tyr Thr Asp Cys Thr Glu Ser Gly Gln Asn Leu Cys Leu Cys
1 5 10 15
Glu Gly Ser Val Val Cys Gly Gln Gly Asn Lys Cys Ile Glu Gly Ser
20 25 30
Asp Gly Glu Lys Asn Gln Cys Val Thr Gly Glu Gly Thr Pro Lys Pro
35 40 45
Glu Ser His Asn Asp Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
50 55 60
Gln
65

<210> 67
<211> 65
<212> PRT
<213> Artificial Sequence

<220>
<223> modified hirudin

<400> 67
Val Val Tyr Thr Asp Cys Thr Glu Ser Gly Gln Asn Leu Cys Leu Cys
1 5 10 15
Glu Gly Ser Val Val Cys Gly Gln Gly Asn Lys Cys Ile Gly Gly Ser
20 25 30
Asp Gly Glu Lys Asn Gln Cys Val Thr Gly Glu Gly Thr Pro Lys Pro
35 40 45
Glu Ser His Asn Asp Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
50 55 60
Gln
65

<210> 68
<211> 65
<212> PRT
<213> Artificial Sequence

<220>
<223> modified hirudin

<400> 68
Val Val Tyr Thr Asp Cys Thr Glu Ser Gly Gln Asn Leu Cys Leu Cys
1 5 10 15
Glu Gly Ser Val Val Cys Gly Gln Gly Asn Lys Cys Ile His Gly Ser
20 25 30
Asp Gly Glu Lys Asn Gln Cys Val Thr Gly Glu Gly Thr Pro Lys Pro
35 40 45

Glu Ser His Asn Asp Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
 50 55 60

Gln
 65

<210> 69

<211> 65

<212> PRT

<213> Artificial Sequence

<220>

<223> modified hirudin

<400> 69

Val Val Tyr Thr Asp Cys Thr Glu Ser Gly Gln Asn Leu Cys Leu Cys
 1 5 10 15

Glu Gly Ser Val Val Cys Gly Gln Gly Asn Lys Cys Ile Lys Gly Ser
 20 25 30

Asp Gly Glu Lys Asn Gln Cys Val Thr Gly Glu Gly Thr Pro Lys Pro
 35 40 45

Glu Ser His Asn Asp Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
 50 55 60

Gln
 65

<210> 70

<211> 65

<212> PRT

<213> Artificial Sequence

<220>

<223> modified hirudin

<400> 70

Val Val Tyr Thr Asp Cys Thr Glu Ser Gly Gln Asn Leu Cys Leu Cys
 1 5 10 15

Glu Gly Ser Val Val Cys Gly Gln Gly Asn Lys Cys Ile Asn Gly Ser
 20 25 30

Asp Gly Glu Lys Asn Gln Cys Val Thr Gly Glu Gly Thr Pro Lys Pro
 35 40 45

Glu Ser His Asn Asp Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
 50 55 60

Gln
 65

<210> 71

<211> 65

<212> PRT

<213> Artificial Sequence

<220>

<223> modified hirudin

<400> 71

Val Val Tyr Thr Asp Cys Thr Glu Ser Gly Gln Asn Leu Cys Leu Cys

```

1           5           10           15
Glu Gly Ser Val Val Cys Gly Gln Gly Asn Lys Cys Ile Pro Gly Ser
                20           25           30
Asp Gly Glu Lys Asn Gln Cys Val Thr Gly Glu Gly Thr Pro Lys Pro
            35           40           45
Glu Ser His Asn Asp Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
        50           55           60
Gln
65

```

<210> 72
 <211> 65
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> modified hirudin

```

<400> 72
Val Val Tyr Thr Asp Cys Thr Glu Ser Gly Gln Asn Leu Cys Leu Cys
1           5           10           15
Glu Gly Ser Val Val Cys Gly Gln Gly Asn Lys Cys Ile Gln Gly Ser
                20           25           30
Asp Gly Glu Lys Asn Gln Cys Val Thr Gly Glu Gly Thr Pro Lys Pro
            35           40           45
Glu Ser His Asn Asp Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
        50           55           60
Gln
65

```

<210> 73
 <211> 65
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> modified hirudin

```

<400> 73
Val Val Tyr Thr Asp Cys Thr Glu Ser Gly Gln Asn Leu Cys Leu Cys
1           5           10           15
Glu Gly Ser Val Val Cys Gly Gln Gly Asn Lys Cys Ile Arg Gly Ser
                20           25           30
Asp Gly Glu Lys Asn Gln Cys Val Thr Gly Glu Gly Thr Pro Lys Pro
            35           40           45
Glu Ser His Asn Asp Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
        50           55           60
Gln
65

```

<210> 74
 <211> 65
 <212> PRT
 <213> Artificial Sequence

<220>

<223> modified hirudin

<400> 74

```

Val Val Tyr Thr Asp Cys Thr Glu Ser Gly Gln Asn Leu Cys Leu Cys
 1           5           10           15
Glu Gly Ser Val Val Cys Gly Gln Gly Asn Lys Cys Ile Ser Gly Ser
      20           25           30
Asp Gly Glu Lys Asn Gln Cys Val Thr Gly Glu Gly Thr Pro Lys Pro
      35           40           45
Glu Ser His Asn Asp Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
      50           55           60
Gln
65

```

<210> 75

<211> 65

<212> PRT

<213> Artificial Sequence

<220>

<223> modified hirudin

<400> 75

```

Val Val Tyr Thr Asp Cys Thr Glu Ser Gly Gln Asn Leu Cys Leu Cys
 1           5           10           15
Glu Gly Ser Val Val Cys Gly Gln Gly Asn Lys Cys Ile Thr Gly Ser
      20           25           30
Asp Gly Glu Lys Asn Gln Cys Val Thr Gly Glu Gly Thr Pro Lys Pro
      35           40           45
Glu Ser His Asn Asp Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
      50           55           60
Gln
65

```

<210> 76

<211> 65

<212> PRT

<213> Artificial Sequence

<220>

<223> modified hirudin

<400> 76

```

Val Val Tyr Thr Asp Cys Thr Glu Ser Gly Gln Asn Leu Cys Leu Cys
 1           5           10           15
Glu Gly Ser Val Val Cys Gly Gln Gly Asn Lys Cys Ile Leu Gly Ser
      20           25           30
Asp Gly Glu Lys Asn Gln Cys Ala Thr Gly Glu Gly Thr Pro Lys Pro
      35           40           45
Glu Ser His Asn Asp Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
      50           55           60
Gln
65

```

<210> 77
<211> 65
<212> PRT
<213> Artificial Sequence

<220>
<223> modified hirudin

<400> 77
Val Val Tyr Thr Asp Cys Thr Glu Ser Gly Gln Asn Leu Cys Leu Cys
1 5 10 15
Glu Gly Ser Val Val Cys Gly Gln Gly Asn Lys Cys Ile Leu Gly Ser
20 25 30
Asp Gly Glu Lys Asn Gln Cys Thr Thr Gly Glu Gly Thr Pro Lys Pro
35 40 45
Glu Ser His Asn Asp Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
50 55 60
Gln
65

<210> 78
<211> 65
<212> PRT
<213> Artificial Sequence

<220>
<223> modified hirudin

<400> 78
Val Val Tyr Thr Asp Cys Thr Glu Ser Gly Gln Asn Leu Cys Leu Cys
1 5 10 15
Glu Gly Ser Val Val Cys Gly Gln Gly Asn Lys Cys Ile Leu Gly Ser
20 25 30
Asp Gly Glu Lys Asn Gln Cys Val Thr Gly Glu Gly Thr Pro Thr Pro
35 40 45
Glu Ser His Asn Asp Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
50 55 60
Gln
65

<210> 79
<211> 65
<212> PRT
<213> Artificial Sequence

<220>
<223> modified hirudin

<400> 79
Val Val Tyr Thr Asp Cys Thr Glu Ser Gly Gln Asn Leu Cys Leu Cys
1 5 10 15
Glu Gly Ser Val Val Cys Gly Gln Gly Asn Lys Cys Ile Leu Gly Ser
20 25 30
Asp Gly Glu Lys Asn Gln Cys Val Thr Gly Glu Gly Thr Pro Lys Ala
35 40 45
Glu Ser His Asn Asp Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu

50 55 60
 Gln
 65

 <210> 80
 <211> 65
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> modified hirudin

 <400> 80
 Val Val Tyr Thr Asp Cys Thr Glu Ser Gly Gln Asn Leu Cys Leu Cys
 1 5 10 15
 Glu Gly Ser Val Val Cys Gly Gln Gly Asn Lys Cys Ile Leu Gly Ser
 20 25 30
 Asp Gly Glu Lys Asn Gln Cys Val Thr Gly Glu Gly Thr Pro Lys Thr
 35 40 45
 Glu Ser His Asn Asp Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
 50 55 60
 Gln
 65

<210> 81
 <211> 65
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> modified hirudin

 <400> 81
 Val Val Tyr Thr Asp Cys Thr Glu Ser Gly Gln Asn Leu Cys Leu Cys
 1 5 10 15
 Glu Gly Ser Val Val Cys Gly Gln Gly Asn Lys Cys Ile Leu Gly Ser
 20 25 30
 Asp Gly Glu Lys Asn Gln Cys Val Thr Gly Glu Gly Thr Pro Lys Pro
 35 40 45
 Glu Ser His Asn Glu Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Leu
 50 55 60
 Gln
 65

<210> 82
 <211> 65
 <212> PRT
 <213> Artificial Sequence

 <220>
 <223> modified hirudin

 <400> 82
 Val Val Tyr Thr Asp Cys Thr Glu Ser Gly Gln Asn Leu Cys Leu Cys
 1 5 10 15

Glu	Gly	Ser	Val	Val	Cys	Gly	Gln	Gly	Asn	Lys	Cys	Ile	Leu	Gly	Ser
			20					25					30		
Asp	Gly	Glu	Lys	Asn	Gln	Cys	Val	Thr	Gly	Glu	Gly	Thr	Pro	Lys	Pro
		35					40					45			
Glu	Ser	His	Asn	Asn	Gly	Asp	Phe	Glu	Glu	Ile	Pro	Glu	Glu	Tyr	Leu
	50					55					60				
Gln															
65															

<210> 83
 <211> 65
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> modified hirudin

Val	Val	Tyr	Thr	Asp	Cys	Thr	Glu	Ser	Gly	Gln	Asn	Leu	Cys	Leu	Cys
1				5					10					15	
Glu	Gly	Ser	Val	Val	Cys	Gly	Gln	Gly	Asn	Lys	Cys	Ile	Leu	Gly	Ser
			20					25					30		
Asp	Gly	Glu	Lys	Asn	Gln	Cys	Val	Thr	Gly	Glu	Gly	Thr	Pro	Lys	Pro
		35					40					45			
Glu	Ser	His	Asn	Arg	Gly	Asp	Phe	Glu	Glu	Ile	Pro	Glu	Glu	Tyr	Leu
	50					55					60				
Gln															
65															

<210> 84
 <211> 65
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> modified hirudin

Val	Val	Tyr	Thr	Asp	Cys	Thr	Glu	Ser	Gly	Gln	Asn	Leu	Cys	Leu	Cys
1				5					10					15	
Glu	Gly	Ser	Val	Val	Cys	Gly	Gln	Gly	Asn	Lys	Cys	Ile	Leu	Gly	Ser
			20					25					30		
Asp	Gly	Glu	Lys	Asn	Gln	Cys	Val	Thr	Gly	Glu	Gly	Thr	Pro	Lys	Pro
		35					40					45			
Glu	Ser	His	Asn	Asp	Gly	Asp	His	Glu	Glu	Ile	Pro	Glu	Glu	Tyr	Leu
	50					55					60				
Gln															
65															

<210> 85
 <211> 20
 <212> PRT
 <213> Artificial Sequence

<220>

<223> secretion signal

<400> 85

Met	Phe	Ser	Leu	Lys	Leu	Phe	Val	Val	Phe	Leu	Ala	Val	Cys	Ile	Cys
1				5					10					15	
Val	Ser	Gln	Ala												
			20												

<210> 86

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> secretion signal

<400> 86

Met	Val	Ser	Leu	Lys	Leu	Phe	Val	Val	Phe	Leu	Ala	Val	Cys	Ile	Cys
1				5					10					15	
Val	Ser	Gln	Ala												
			20												

<210> 87

<211> 15

<212> PRT

<213> hirudo medicinalis

<400> 87

Val	Val	Tyr	Thr	Asp	Cys	Thr	Glu	Ser	Gly	Gln	Asn	Leu	Cys	Leu
1				5					10					15

<210> 88

<211> 15

<212> PRT

<213> hirudo medicinalis

<400> 88

Leu	Thr	Tyr	Thr	Asp	Cys	Thr	Glu	Ser	Gly	Gln	Asn	Leu	Cys	Leu
1				5					10					15

<210> 89

<211> 15

<212> PRT

<213> hirudo medicinalis

<400> 89

Thr	Asp	Cys	Thr	Glu	Ser	Gly	Gln	Asn	Leu	Cys	Leu	Cys	Glu	Gly
1				5					10					15

<210> 90

<211> 15

<212> PRT

<213> hirudo medicinalis

<400> 90

Thr Glu Ser Gly Gln Asn Leu Cys Leu Cys Glu Gly Ser Asn Val
1 5 10 15

<210> 91

<211> 15

<212> PRT

<213> hirudo medicinalis

<400> 91

Gly Gln Asn Leu Cys Leu Cys Glu Gly Ser Asn Val Cys Gly Gln
1 5 10 15

<210> 92

<211> 15

<212> PRT

<213> hirudo medicinalis

<400> 92

Leu Cys Leu Cys Glu Gly Ser Asn Val Cys Gly Gln Gly Asn Lys
1 5 10 15

<210> 93

<211> 15

<212> PRT

<213> hirudo medicinalis

<400> 93

Cys Glu Gly Ser Asn Val Cys Gly Gln Gly Asn Lys Cys Ile Leu
1 5 10 15

<210> 94

<211> 15

<212> PRT

<213> hirudo medicinalis

<400> 94

Ser Asn Val Cys Gly Gln Gly Asn Lys Cys Ile Leu Gly Ser Asp
1 5 10 15

<210> 95

<211> 15

<212> PRT

<213> hirudo medicinalis

<400> 95

Cys Gly Gln Gly Asn Lys Cys Ile Leu Gly Ser Asp Gly Glu Lys
1 5 10 15

<210> 96

<211> 15

<212> PRT

<213> hirudo medicinalis

<400> 96

Gly	Asn	Lys	Cys	Ile	Leu	Gly	Ser	Asp	Gly	Glu	Lys	Asn	Gln	Cys
1				5					10					15

<210> 97

<211> 15

<212> PRT

<213> hirudo medicinalis

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<213> hirudo medicinalis

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<212> PRT

<213> hirudo medicinalis

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<213> hirudo medicinalis

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<213> hirudo medicinalis

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Pro Lys Pro Glu Ser His Asn Asp Gly Asp Phe Glu Glu Ile Pro
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<400> 104
Glu Ser His Asn Asp Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr
1 5 10 15

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Asn Asp Gly Asp Phe Glu Glu Ile Pro Glu Glu Tyr Tyr Leu Gln
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Cys	Glu	Lys	Gly	Ser	Asp	Gly	Glu	Lys	Asn	Gln	Cys	Val	Thr	Gly
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Cys	Arg	His	Gly	Ser	Asp	Gly	Glu	Lys	Asn	Gln	Cys	Val	Thr	Gly
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